



Atty. Dkt. No. 086531-0138

IN THE UNITED STATES PATENT and TRADEMARK OFFICE

Applicant: Tomohisa ARAI et al.

Title: CUTTER COMPOSED OF NI-CR ALLOY

Appl. No.: 10/514,196

International 5/14/2003

Filing Date:

371(c) Date: 11/12/2004

Examiner: Tima Michele MgGuthry Banks

Art Unit: 1793

Confirmation 4571

Number:

AMENDMENT and REPLY UNDER 37 CFR 1.111

Mail Stop
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This communication is responsive to the Non-Final Office Action dated September 9, 2008, concerning the above-referenced patent application.

Applicant has enclosed with this amendment a Petition for Extension of Time to make this response timely.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks/Arguments begin on page 4 of this document.

Please amend the application as follows:

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Currently Amended) A cutter comprising a Ni-Cr alloy comprising:
from 32 to 44 mass percent of Cr,
from 2.3 to 6 mass percent of Al,
the balance being Ni, impurities, and additional trace elements, and
wherein the cutter has a Rockwell C hardness of 52 or more, and
wherein the Ni-Cr alloy further comprises:
from 0.005 to 0.025 mass percent of Mg;
from 0.005 to 0.02 mass percent of Ca;
from 0.005 to 0.03 mass percent of B; and
from 0.005 to 0.02 mass percent of rare earth elements including Y; as the
impurities and the additional trace elements, and
wherein the total content of Mg, Ca, and B is greater than 0.015 and less than or equal
to 0.03 mass percent, the total content of P, O, and S is greater than zero and less than or
equal to 0.003 mass percent and the total content of Mn, Cu and Si is greater than zero and
less than or equal to 0.03 mass percent,
wherein the Ni-Cr alloy comprises a texture comprising a mixture of a Cr-rich α
phase, a Ni-rich phase γ phase, and an intermetallic compound phase composed of Ni_3Al as a
basic composition γ phase and the Ni-Cr alloy has an average grain size of 1 mm or less,

[[and]]

wherein the cutter comprises a mirror-finished surface formed by final polishing with a polisher, so that the cutter has an aesthetic property, and

wherein a moving distance of the cutter required for completely cutting a hemp rope is doubled or less compared with an initial state of the cutter even after 1,000 cut operations are performed when a rope cut test is performed under conditions that a linear blade part of the cutter is pressed on a hemp rope having a diameter of 10 mm and the cutter is reciprocated in the horizontal direction while a load of 2 kg is applied to the cutter whereby the moving distance of the cutter required for completely cutting the hemp rope is repeatedly measured.

7. (Cancelled)

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)